

CLAIMS

We claim:

- 1 1. Method for evaluating a network, comprising the steps
2 of:
3 executing a burst test to determine the network's
4 streaming speed, said burst test including
5 transmitting a plurality of packets over said
6 network to a receiver; and
7 determining the time of receipt of each said
8 packets by said receiver; and
9 responsive to said time of receipt of each said
10 packets, calculating the current speed of said network.

1 2. The method of claim 1, further comprising the step of:

2 evaluating as the maximum speed of said network the
3 best observed time of receipt for the plurality of
4 packets.

1 3. The method of claim 2, further comprising the step of

2 responsive to detecting several instances of said time
3 of receipt representing current speeds close to said
4 maximum speed, determining that testing has stabilized.

1 4. The method of claim 1, said transmitting step
2 comprising the transmission of logical best bursts.

1 5. The method of claim 1, said transmitting step
2 comprising the transmission of packets of a size equal to
3 network maximum packet size (MTU).

1 6. The method of claim 5, further comprising the step of:

2 determining said MTU as the maximum size of packets
3 successfully transmitted without fragmentation.

1 7. The method of claim 2, further comprising the step of:

2 calculating an average streaming utilization percent by
3 taking the ratio of average burst rate to best burst
4 rate.

1 8. The method of claim 7, further comprising the step of:

2 adjusting average streaming utilization for occurrences
3 of burst frame discards.

1 9. The method of claim 1, said transmitting step including
2 the transmission of complex bursts in which short and long
3 frames are transmitted per test iteration.

1 10. The method of claim 9, further comprising the step of
2 determining the streaming speed of said network by dividing

3 the difference in size of said short frames and said long
4 frames by the difference in transmission time between short
5 frames and long frames.

1 11. Method for establishing network characteristics
2 including the historical, current, and predicted future of
3 states of a network for all types of network traffic,
4 including interactive, browser, batch, and realtime traffic,
5 comprising the steps of:

6 transmitting probative packets into said network, said
7 packets including echoed and non-echoed packets, of
8 like and differing lengths, of like and differing
9 network priority, individually and in bursts;

10 measuring the transit times of said probative packets;
11 and

12 responsive to said transit times, determining the
13 streaming speed of said network.

1 12. System for evaluating the characteristics of a network,

2 comprising:

3 a send node for communicating probative packets into
4 said network, said packets including burst packets;

5 a receive node for determining that frames of said
6 packets are received in sequence and without
7 retransmission, and the elapsed time between first
8 through last frames of said packets;

9 a speed analysis application responsive to said elapsed
10 time and the size of said packets for calculating
11 network speed.

1 13. A program storage device readable by a machine,
2 tangibly embodying a program of instructions executable by a
3 machine to perform method steps for evaluating the
4 characteristics of a network, said method steps comprising:

5 communicating probative packets into said network, said
6 packets including burst packets;

7 determining at the receiver of said packets that frames

8 of said packets are received in sequence and without
9 retransmission, and the elapsed time between first
10 through last frames of said packets;

11 responsive to said elapsed time and the size of said
12 packets for calculating network speed.

1 14. An article of manufacture comprising:

2 a computer useable medium having computer readable program
3 code means embodied therein for evaluating a network, the
4 computer readable program means in said article of
5 manufacture comprising:

6 computer readable program code means for causing a
7 computer to effect executing a burst test to determine
8 the network's streaming speed, said burst test
9 including

10 transmitting a plurality of packets over said
11 network to a receiver; and

12 determining the time of receipt of each said

13 packets by said receiver; and

14 computer readable program code means for causing a
15 computer to effect responsive to said time of receipt
16 of each said packets, calculating the current speed of
17 said network.

1 15. A computer program product or computer program element
2 for executing the steps of:

3 transmitting probative packets into said network, said
4 packets including echoed and non-echoed packets, of
5 like and differing lengths, of like and differing
6 network priority, individually and in bursts;

7 measuring the transit times of said probative packets;
8 and

9 responsive to said transit times, determining the
10 streaming speed of said network.